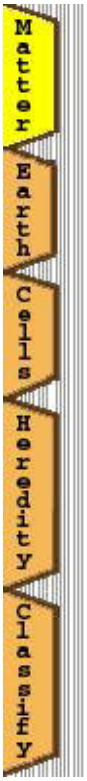
The Feely box--An observation activity



STANDARD: 3200 - 01
Students will evaluate the particulate nature of matter.

Objective: 3200-010 Analyze evidence about particles of matter.

• Compare and contrast through observation the properties of various common substances.

Intended learning outcomes:
1. Use Basic Science Process Skills
1 a. Make observations and measurements (uses instruments as appropriate).
2 b. Develop and use categories to classify observations.
3. Manifest Scientific Attitudes and Interests
3 a. Maintain a sense of curiosity about natural phenomena.

Teacher Preparation:
Materials needed:
1 Sturdy cardboard box made into a "feely Box".

> To make a "feely box" get a box narrow enough that the student can comfortably put both hands into the box through holes on both sides of the box. Cut the holes, then rig some fabric sleeves in the holes so that the students cannot see into the box. This can be done by poking the shoulder part of the sleeve through the hole to the inside of the box, cutting some "tabs" on the end of the sleeve and then gluing them around the hole. Old shirt sleeves, old pant legs etc. Have worked great. Also fix the top of the box so that they cannot see into the box.

Several Mystery objects that will fit into the box with room for the student to explore the object by touch. Try to find objects that you don't think the students will recognize. You may want to do things to your mystery objects to disguise them like putting a marble in a balloon partly filled with water and then tying an old nylon sock on the outside.
*****Caution***** Do not use objects that can cut or pinch students.

Teacher instructions:
During this activity you will be trying to help the students to learn to use other senses than their eyes.

- It is important not to tell or show them what was in the box when they are done.
  - One of the skills students need to learn is to observe indirectly. This may be very hard for the students.
  - It is important that the students you choose to explore the "feely box" for the group understand what a property is. They will only be able to describe the mystery objects by giving that objects properties, things that describe such as texture, size, hardness, etc, to the class.
- You may choose to put more than one mystery object in the box at the same time. The feeler should not distinguish between the objects. If the feeler uses sizes as a property have them use standard measurements, not comparisons with other objects.
- It is important that students hold their class discussion until discussion time.
- After several feelers have exhausted their supply of clues to the rest of the class, have the students take five minutes and form a hypothesis on what they think the object was and what it looks like.
  - No class discussion yet please.
  - Have them draw what they think it looks like.
- After five minutes open up a class discussion where all students have the opportunity to show their picture and tell what they think the object is.
- After every one has had their say give them time to revise their hypothesis.
- Have the class come to a consensus as to what is in the box.
  - Don't tell or show them if they are right or not!
  - You may use this as a spring board to discuss how scientists often have to form hypothesis from indirect observations.

Student instructions:

Some of you will be chosen to be "feelers" as we explore the contents of the "feely box today".

1. It will be very important that you do not tell the class what is in the box.
2. Your task is to be the "eyes", reporting to the "brain" (the class) what you "see" (feel).
3. You may only tell the class properties, characteristics. or traits, things that describe such as texture, size, hardness, etc., of the object inside the box.

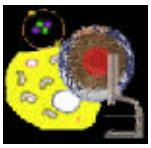
The duties of the class members during no discussion time are:

> 1. Write down all the clues you get from the feeler about the mystery object today.
> 2. When you have as many clues as you can get, form a hypothesis and draw what you think the mystery object looks like.
> During class discussion time
> 3. Show your picture and tell what you thought the mystery object was.
> 4. Make adjustments to your hypothesis as the need arises during the discussion.
> 5. Help the class come to a consensus as to what the mystery object really was.

6. Write a summery of what you learned during this activity, include frustrations and triumphs.

Safety Concerns

Students, be sure to follow all teacher directions that are given by for this activity.



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